

### Abstract

The invention relates to a method and an apparatus to identify alveolar opening and collapse of a lung. To automatically generate the settings of ventilator parameters in a simple and gentle way, the hemoglobin oxygen saturation and/or the endtidal CO<sub>2</sub> concentration and/or the CO<sub>2</sub> output are measured and processed to detect alveolar opening and closing. From the knowledge of the corresponding airway pressures, a central processing unit may generate the settings of ventilation parameters such that gas exchange is maximal while the mechanical stress of the lung tissue is minimal.

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